

GUEST EDITORIAL

The State of the Art: How Far Does It Reach?

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We live in exciting times—men live in space and robots move on Mars. On the eve of the 21st century, as new knowledge unfolds on the frontiers of scientific technology and molecular biology, the oncology landscape gradually and steadily appears to assume brighter hues. During the era of clinical sciences of the 1950s, medicine was a bedside clinical art, whereas the decades of the 1970s and 1980s have seen medicine evolve into a scientific technology helping to decipher the biological nuances of the human system in health and disease. This is just as it should be, as this new knowledge would not have been possible without current technology. Today's clinical oncologists can call upon a bewildering array of tests, techniques, devices, and drugs to predict, prevent, diagnose, and treat cancer in a manner sanctioned and sanctified by the best that modern statistics has to offer. The successes are there for all to see. Hitherto fatal childhood cancers are curable, the survivors leading useful adult lives. Men with testicular cancer live to father sons of their own. Hodgkin disease and some childhood leukemias are no longer the dreaded diseases they once were. Cervical cancer is preventable, and breast cancer may become so. The pain of cancer has been conquered, or nearly so. Much, therefore, is expected of the cancer establishment in the coming decades; however, our excitement must be tempered with cautious optimism. Critical analysis will show that most achievements in clinical oncology have not been due to any profound understanding of the biology of the disease or spectacular advances in cancer research, but have come by dint of painstaking application and collation of the time-honoured skills of surgeons, radiation oncologists, medical oncologists, pathologists, and radiologists, supported by advances in drug development, diagnostic imaging, and supportive care. Despite these successes, however, the lot of cancer patients worldwide has not improved remarkably, since the majority of commoner adult cancers remain incurable, particularly when diagnosed late.

In the final analysis, progress in science and research can be measured effectively only in terms of its relevance to the society.

From chromosomal aberrations to gene mutations and molecular oncology to predictive sciences in cancer, current literature is replete with these titles in oncology journals; add to these clinical trials—double-blind and randomised—with benefits of 10%, or thereabout, for 6–8 months, and one has covered 80% of current publications. The amount of time, talent, and money spent should not always be measured in terms of cost–benefit ratios, for surely it will not stand scrutiny by any standards; and yet, cost–benefit ratios rigorously applied can risk a stagnant science. In an era in which science is often driven by market and academic forces, we have to accept the old adage that contribution to science is indeed a very slow and painful process, and yet there is no other way to progress except what we have at hand today. Basic and clinical research is like a newborn baby—the full potential is achieved only after years of nurturing, training, and growth. No matter what may be said to the contrary, our current efforts have to continue, tempered with realism and pragmatism.

It is logical that we reflect on our aforementioned successes, however small the quantum may be, and hope that it will provide us some directions for the future. It is more important, however, to introspect about how far such benefits reach the global population at large. Cancer is indeed a lifestyle disease but, more importantly, a socioeconomic problem in most parts of the world. In large parts of Latin America, most parts of Africa, South Asia, Southeast Asia, and China the benefits of these few successes cited above have not touched the lives of their

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peoples, mired as their populations are in poverty and lack of the basic necessities of life. The reasons for this inequitable benefit are not far to seek. They are educational and socioeconomic. The political solution in the developing world is “to take medicine to the masses”—a mantra often repeated by the politicians to the point of exasperation for the professionals involved; yet, science and politics have to move in a tandem, as few countries can implement health care programmes without effectively harnessing government infrastructure.

India is a case in point. Organised government-sponsored cancer control consists mainly of a sparsely spread network of regional cancer centres and radiation therapy units with disparate facilities ranging from “state of the art” to medium- or even low-technology units in medical colleges and small community hospitals. There is virtually no government-sponsored primary cancer care in existence. The Tata Memorial Centre, Bombay, is the oldest, largest, and the best-equipped comprehensive cancer care centre in India. Experience at this centre over the past 50 years has shown the futility of attempting to successfully palliate, let alone cure, nearly one-half of the cancer patients who manage to reach the centre from the rural and semiurban areas in the hinterland. Patients arrive too late, too ill, and with too few resources to last in an alien, unfriendly city. A study of 200 patients with oral cancer attending the Tata Memorial Centre showed that 43% abandoned therapy within the first month [1]. The reasons were obvious: advanced disease and socioeconomic problems that prevented them from attending the clinic for scheduled visits.

Those of us who work in the protected and corporate atmosphere of ultra modern laboratories and hospital clinics replete with current therapeutic technology ought to reflect on the wisdom of Ivan Illich’s statement that “Much medical capabilities exist beyond the formal institutions of learning” [2].

Harnessing these capabilities to reach out to those who were unable to reach cancer facilities was the inspiration behind the Barsi Rural Project initiated by the author in 1982. There is indeed no originality involved in this, except for the fact that for the first time a separate vertical programme was initiated to test the validity of this concept towards cancer control in a developing country. Many health care programmes initiated by government agencies in the developing countries are organised on the precept of taking basic health care to the masses to control infectious diseases like tuberculosis, malaria, measles, and various maternal and child care programmes based on simple educational, preventive, diagnostic, and treatment strategies integrated into the health care delivery system.

In any organised effort of this nature (for control of cancer), the three most important components in descending order of importance are planning strategies,

identifying human resources, and raising budgetary provision. The unchanging and depressing scenario of being unable to help decrepit patients with advanced cancer at a tertiary care hospital (the Tata Memorial Hospital) had stimulated the mind to reach out to them in their own surroundings. The search for human resources, the most difficult part of any effort, fortunately did not prove too arduous or difficult, and budgetary provisions were not an impediment, for money for any worthwhile cause is always forthcoming in most parts of the world. The project plan was to:

1. Initiate an educational drive by holding “cancer camps” in a defined rural setting that stressed prevention and early diagnosis
2. Establish a simple outpatient diagnostic division at a base centre
3. Organise a mobile diagnostic service with inbuilt facilities (mobile van) for clinical examination, collection of biopsy, and cytology samples and simple diagnostic radiology
4. Create educational material and public awareness through local health workers ahead of a cancer camp
5. Create credibility in the rural population that would gradually improve patient compliance
6. Gradually add diagnostic and therapeutic facilities at the base centre that would eventually be transformed into a community cancer centre
7. Pledge and lend professional support from the Tata Memorial Centre for teaching and training rural-based, but fully qualified, professionals in all disciplines; providing visiting personnel for the camps, base hospital and preferential treatment, when needed, at the Tata Memorial Centre for all cases detected at the rural centre
8. Encourage self-reliance by identifying credible patrons in the local communities who would help generate funds from the region, which in turn could attract support from government and nongovernmental organisations on a recurring basis. [Stepwise implementation of the salient features of this project took 8 years. A planned decision to peer review the effort at 4 years and organise a mid-course correction as needed or to abandon the project was made. An independent investigator (K.J.) who had piloted a successful Rural Cancer Registry Project [3] at this centre through the Indian Council of Medical Research peer-reviewed the data, which showed that there was sufficient evidence that the strategy was paying dividends and with a moderate mid-course correction, the project was continued.]

It has become amply clear that not only was a downstaging of cervical cancer achieved [3–5] in this rural uneducated population, but the compliance rate for attending camps and the base hospital increased significantly, and

a high credibility level was established. Over a 5-year period (1988–1992), patients with cancer of the cervix, FIGO stage Ia–IIb, increased from 38% to 51%, and the 3-year survival rate jumped from 26.6% to 44.5%, as shown by the rural cancer registry data [4]. The rural centre, which started humbly with an outpatient department, is now a full-fledged community cancer centre that delivers effective cancer care to more than 80% of cancer patients in their own environment. The centre grew out of a simple thought process and the efforts of a committed few. It serves as a model for the cancer effort in the developing world as enunciated by the World Health Organization.

In vast areas of the globe, the underprivileged, illiterate, and poverty-ridden masses abound. They form a health underclass that lives in filth, want, and abysmal ignorance. Ekeing out survival is their main preoccupation. Health issues figure low in their continued fight for a semblance of human existence. The canvas of our lives ought to reach beyond the narrow confines of our commitments as oncologists. No matter where we are, in the laboratory or in the clinics, in the operating room or surrounded by diagnostic and therapeutic technology, or studying habits and lifestyles, or tracing families in a genetic search, reaching out to those who need help will provide a deep satisfaction to our innermost selves. Truly it is said that the practice of science without conscience is but the death of the soul. Let us therefore take time to pause and reflect to bring a philosophical insight into our scientific lives lest we forget cancer patients in our goal to work for cancer. I consider this ethos a moral obligation to the society and it is imperative that we strive to transmit it to the present and future ages.

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REFERENCES

1. Desai PB, Advani SH, Rao RS, et al.: A study of impact of advanced treatment technologies on the life quality of oral cancer patients in India. A psychooncologic view point. In Ventafrida V, et al. (eds): "Assessment of Quality of Life and Cancer Treatment." Amsterdam: Elsevier Science Publishers B.V., Biomedical Division, 1986:159–165.
2. Illich I: "Limits to Medicine." London: Marion Boyers, 1976.
3. Jayant K, Rao RS, Nene BM, et al.: Improved survival in cervical cancer cases in a rural Indian population. *Br J Cancer* 1996;74:285–287.
4. Jayant K, Rao RS, et al.: Improved stage at diagnosis of cervical cancer with increased cancer awareness in a rural Indian population. *Int J Cancer* 1995;63:161–163.
5. Nene BM, Deshpande S, Jayant K, et al.: Early detection of cervical cancer by visual inspection: A population-based study in rural India. *Int J Cancer* 1996;68:770–773.